

ABSTRACT

A DC power source device comprises a MOS-FET 5 which performs the intermittent switching operation for converting DC input from a DC power supply 1 into high frequency electric power; a control circuit 9 for turning MOS-FET 5 on and off; and a rectifying smoother 6 for converting the high frequency electric power through MOS-FET 5 into a DC power output supplied to a load 50. Control circuit 9 comprises an output current controller 11 for controlling the on-off term of MOS-FET 5 to make DC output current I_o through load 50 settle toward a rated value I_{OMAX} ; a shunt regulator 24 for receiving a drive current I_{SH} supplied from rectifying smoother 6 and producing a reference voltage V_{R1} to regulate the rated value I_{OMAX} of output current controller 11; and a constant current source 32 for keeping drive current I_{SH} on a substantially constant level under the rated output current value condition and reduced output voltage condition. Constant current source 32 functions to supply shunt regulator 24 with minimum drive current I_{SH} to maintain reference voltage V_{REF} on a constant level under the reduced output voltage, and also to control drive current I_{SH} to shunt regulator 24 to a necessary but minimum level under the rated value of DC output current.